UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/035,852	12/31/2001	Xiao-Ming Huang	G06.005	4146

28062 7590 03/22/2007

BUCKLEY, MASCHOFF & TALWALKAR LLC
50 LOCUST AVENUE
NEW CANAAN, CT 06840

EXAMINER	
LOFTUS, ANN E	
ART UNIT	PAPER NUMBER
3694	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/22/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/035,852	HUANG ET AL.	
	Examiner	Art Unit	
	Ann Loftus	3694	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 December 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-41* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _____ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/31/01*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: There si some confusion about the number of variables in the best mode explained. Starting on page 21, line 26, ten variables are listed, numbered 1-9 with number 8 used twice. On page 22, lines 19 and 21, reference is made to fourteen variables instead of ten. The specification goes on to explain the first eight of these variables. The last two are labeled:

Variation Of Lender Exchange number during previous six months, and

Variation of Lender Exchange Amount during previous six months.

In the following explanation of variables, the last two are headed:

Variation in LE Total Amount over six months, and

Variation in LE Average Amount over six months.

Above Table 1, on page 30, fourteen variables are referenced. Table 1 shows nine of the ten previously mentioned variables, skipping either Variation in LE number, or Variation in LE Average Amount depending upon which was intended. Page 32 line 4 indicates fourteen variables. Table 2 indicates the same variables as Table 1. In the discussion of the next embodiment, twelve variables are listed starting on page 37, line 21. On page 38, reference is made to eleven variables in line 10 and then nine variables in line 12. Further proofing is left to the applicant.

The method as understood requires a particular set of input variables for each embodiment, while they may vary from embodiment to embodiment. The applicant is

requested to either make corrections such that the names and number of variables in each example embodiment remain consistent, or more clearly explain how they vary within the embodiment.

Claim Objections

2. Claims 2, 3, 20 and 21 are objected to because of the following informalities: The word port seems to refer to a portion rather than a city with sea traffic or a computer communications port. This contradicts common usage. Appropriate correction is required.

In claim 6, the word "during" would normally be followed by an event rather than a plurality of objects. As is, the phrase is difficult to interpret. For the purposes of examination, the examiner presumes by the claim pattern that the word "determining" was intended. Appropriate correction is required.

As to claim 23, the parent claim (19) discloses a second weighted score based on customer data whereas in this claim the second weighted score is tied to loan account data instead of customer data. No correction is required for this observation, but the examiner wishes confirmation that this break in the pattern of claims is intentional.

As to claim 36, the word "based" is difficult to interpret because nothing follows to show what the score is based on. Appropriate correction is required.

As to claim 37, the word "further" may have been intended rather than the word "father," in light of the specification and the pattern of the claims. If so, then claim 37 fails to further limit its parent, which already has customer data. There would be no

subject matter that meets the parent claim that does not also meet this claim. Correction is required.

3. Claims 7, 12, 25, 26, 27, and 28 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim.

Claim 7 centers on establishing an account whereas the parent claim (1) implies that the account is already established. There is no subject matter that meets the parent claim that does not also meet this claim.

As to claim 12, being a customer is a criterion, thus all customers meet at least one criterion, thus the claims do not further limit the parent.

As to claims 25 and 26, the parent claim already includes a threshold. "Determining a threshold" does not further limit the parent claim.

As to claims 27 and 28, the parent claim (19) is already "determining data indicative of a parameter" for both the loan account and the customer. This implies that the parameter is already identified, thus there is no subject matter that meets the parent claim that does not also meet this claim.

Claims 14 and 30 are objected to due to the term "credit permission category". The specification explains how this works if the banking tradition uses credit permission data, but it is unclear whether a co-signer would be an equivalent or not. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1-41 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

In particular, the specification fails to explain how to determine weights for the factors such that the final score will have predictive value. An example is given showing weights but not how they were calculated; these weights may be best mode for Japan in 2001, however no technique is explained. Thus without undue experimentation, in any other setting, a person of ordinary skill in the art would have to figure out how to build their own model for their environment and customer base.

As to the independent claims 1, 19, 33-36, 40 and 41, the invention claimed uses a score with predictive value for either a customer's likelihood of paying off an account, or a customer's rate of paying off an account. A person of ordinary skill in the art would not know how to weight the factors in this method to produce such a score with predictive value without undue experimentation. The remaining claims do not add information about how to weight the factors in the score.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 7 refers to establishing said financial account whereas the parent claim 1 refers to a customer already having the account. A method for determining the likelihood of a customer paying off a financial account would be a different invention from a method that determines the likelihood of a customer paying off an account not yet established. Thus the nature of the invention claimed is not clear.

Claim Rejections - 35 USC § 101

8. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

9. Claims 1-41 are rejected under 35 U.S.C. 101 as being directed to non-statutory subject matter, and thus ineligible for patent protection.

An eligible invention either physically transforms an article or physical object to a different state or thing, or produces a useful, concrete and tangible result. If a claim is not directed to an article or physical object, then a relevant test for eligibility is whether the claimed invention as a whole is limited to a useful, concrete and tangible result.

Functional descriptive material in combination with an appropriate computer readable medium must also produce a useful, concrete and tangible result as well.

The MPEP 2106 IV C (2) gives the following guidance to judge whether a result is useful, tangible and concrete:

- Useful – must be specific, substantial and credible and specifically recited in the claim. If the claim is broad enough to not require a practical application, it must be rejected.
- Tangible – must have a "real-world" result, not abstract.
- Concrete – must have a result that is substantially repeatable or the process must substantially produce the same result again.

As to claims 19 and 35, the result of the method claimed is a comparison of a final score with a threshold that indicates a probability of whether a customer might payoff an account. This is an abstract theoretical probability and not a real-world action. The result is not tangible, thus the claim is rejected.

As to claim 33, the result of the method claimed is again a final score that represents an abstract theoretical probability.

The remaining independent claims, 1, 34, 36, 40, and 41, are directed to an invention that results in selecting a course of action. The specification and some of the claims elaborate that a course of action might involve a change in marketing strategy or mailing different promotional pieces to the customer. A change in a mailing list or a change in what is mailed to a customer is a tangible result. Selecting a strategy is not tangible, but implementing a strategy with physical resources is tangible, and the

specification supports implementing a strategy with mailings or other promotional efforts.

However, the result must also be substantially repeatable, or concrete. The method claimed would not necessarily lead to that same result if performed again, because considerable judgment is exercised in selecting the particular course of action. Experts given the same scores might select substantially different courses of action at the level of detail where the action becomes tangible. One might decide that a customer with a very low score (chance of re-use) should be abandoned in favor of marketing to those with more chance of being swayed by marketing. Another might decide on further analysis to identify the most profitable accounts with low scores and market only to them. Another might market to all scores below a threshold as equals.

If the method ends at selecting (an undetermined) course of action, it is repeatable and concrete, but not tangible. If it ends at a physical change in the marketing effort, i.e. the mailing list or the mailing sent to the customer, it is tangible but not concrete. Either way, these claims do not limit the method to a useful, tangible and concrete result, therefore are rejected. The remaining dependent claims also do not limit the method to a useful, tangible and concrete result, therefore are also rejected.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

> invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. Claims 1- 33 and 40 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marc Friedland's article "Credit Scoring Digs Deeper into Data" hereafter referred to as Friedland, published in Credit World, May/June 1996. (Vol. 84, Issue 5, p. 19) in view of an article called "Another Look at the Role of Borrower Characteristics in Predicting Mortgage Prepayments" (hereafter referred to as Little) is by Michael LaCour-Little was published in the Journal of Housing Research, Volume 10, Issue 1, pp 45-60, by Fannie Mae Foundation in 1999.

As to claim 1, 40 and 41, Friedland teaches determining data associated with a customer having a financial account and data regarding said account at the top of page 3. Among the inputs for a credit bureau risk score, he lists loan-to-value, which is account information, and credit history, which is customer information. Friedland teaches determining a score under "Tailored Risk Scores" on page 2. At the bottom of page 4, he teaches selecting a course of action based on a credit score. Friedland does not specifically teach a score indicative of said customer's likelihood of paying off a financial account. Little teaches a score indicative of said customer's likelihood of paying off a financial account on page 50, in the section titled "Data". It would have been obvious to a person of ordinary skill in the art at the time of the invention to determine a score indicative of a customer paying off a financial account in order to predict the risk of unrealized revenue from the account. It would have been obvious to a person of ordinary skill in the art at the time of the invention to use customer and

account data as inputs to determine a payoff score in order to get a score with predictive value for a particular set of customer and account characteristics.

As to claims 4, 19, 22, 23, 25, 26, and 33, Friedland teaches customer and account data as above. Friedland teaches determining a plurality of weighted parameters and calculating a score from the parameters on page 3, in the section Industry Specific Pooled Data Scorecards. Friedland teaches a threshold (cutoff) on page 4 in the section "Beyond Risk Assesment." Friedland does not specifically teach that a threshold might be used with a score indicative of a customer's likelihood of paying off the account. It would have been obvious to a person of ordinary skill in the art when using a score to determine a course of action to develop a threshold and compare the score with the threshold in order to set a clear policy on what scores should prompt action.

As to claims 6 and 10, Friedland teaches strategy determined by a score indicative of re-use at the top of page 5. Friedland teaches promoting a financial product to a customer and targeting a customer with advertising materials based on scores on page 4, "Beyond Risk Assessment," paragraph 5. It would have been obvious to a person of ordinary skill in the art at the time of the invention to select a marketing strategy, promote a product or target a customer with advertising based on a score indicative of account payoff in order to retain the customer's business, since retaining a customer is generally cheaper than acquiring a new one.

As to claim 8, Friedland teaches receiving payments in the section "Maximizing Collections" on page 5.

As to claim 11, Friedland teaches loan accounts on the bottom half of page 2.

As to claim 12, Friedland teaches a customer with a credit score which is a criterion.

As to claim 13, Friedland teaches a balance of zero on page 5 near the top. Official Notice is taken that a threshold for low balances would be likely to include a zero balance.

As to claim 27, Friedland teaches loan accounts and parameters as above.

As to claim 28, Little teaches customer parameters such as age on page 56. Friedland teaches income as a customer parameter at the top of page 3.

Claims that depend on rejected parents are also rejected.

12. Claims 5, 16, 17, 18, 31, 32, and 34-39, are rejected under 35 U.S.C. 103(a) as being unpatentable over Friedland in view of Little and further in view of an article called "A Soft Landing for Retentions: Software helps lenders keep Prepayments at Manageable Levels" by Rhonda Lipschutz, from US Banker, Feb 2000.

Friedland and Little teach claim 1 and the features above. Friedland and Little do not specifically teach a speed of payoff (They teach a rate of payoff as in what percent of customers will pay off but not how fast they will payoff.) Lipshutz teaches a rate of payoff as in "which loans will prepay faster" (page 1). It would have been obvious to a person of ordinary skill at the time of the investment to model the time period and rate(as in speed) and when (the estimated date) the payoff would occur, in order to fine-tune the timing of refinance offers and retain customers.

13. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Friedland in view of Little as above, and further in view of Asch's article "Credit Scoring: A Strategic Advance for Small Business Banking," Commercial Lending Review, Spring 1997 (Vol. 12, Issue 2), p18.

Friedland teaches the parent claim, as well as parameters and weighted scores as above. Friedland also teaches combining credit scores on page 2. The existence of an algorithm to combine scores is inherent in Friedland's report that they are used in combinations. Friedland does not specifically teach adding the scores. Asch teaches scaling the scorecard weights at the top of page 4. It would have been obvious to a person of ordinary skill in the art at the time of the invention that the scores could be scaled in such a way that adding them would make a meaningful final score, in order to combine commercially available scores into a score that best fit company needs.

14. Claims 9, 14, 15, 29 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Friedland in view of Little as above, and in view of Asch's article, and further in view of Official Notice.

Friedland and Little teach the parent claims as above. Asch teaches the sources of credit scoring data on page 3 as the credit application, personal financial statements, business financial statements, business bureau reports (Experian, Dun & Bradstreet), and consumer credit bureau reports (Experian, Trans-Union, Equifax.) Official Notice is taken that the credit scoring data available from these sources and from the account

holder could easily include customer demographics such as, income, gender, loan channel history, credit history, credit rating, and other account data including revolving credit accounts and loans, revolving accounts, bonus accounts, credit permission, job type, insurance type, and size of household, as well as information relative to an account such as interest rate, maximum term, identifier, payment details, payoff history, utilization, loan details, delinquent payments, an interest rate, minimum payment, and maximum balance.

It would have been obvious to a person of ordinary skill in the art at the time of the invention that this data could be used as input to credit scoring to indicate the likelihood of re-use of an account because this data would give a score with predictive value for specific customers and accounts that match the details given.

15. Claims 2, 3, 20, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Friedland and Little as above, and further in view of an article by Bansal and Kauffman, "Comparing the Modeling Performance of Regression and Neural Networks as Data Quality Varies: A Business Model Approach," Journal of Management Information Systems, Summer 93,(Vol. 10, Issue 1), p11, and further in view of Official Notice.

Friedland teaches the parent claims, as above. On page 3, Friedland teaches combining data from two sources. On page 4, Bansal and Kauffman teach receiving credit scoring data by electronic communication, from a database, from an information provider. Bansal does not teach combining data received at two separate times. Official

Notice is taken that credit data is often updated, which means that a first set of data is expanded and corrected by a second set of data. It would have been obvious to a person of ordinary skill in the art at the time of the invention that credit scoring data could be received by the above means, including at two separate times or from two sources and be used for a credit score that would indicate the likelihood of re-use of an account, in order to get the best combination of data available to suit price, timeliness and information needs.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ann Loftus whose telephone number is 571-272-7342. The examiner can normally be reached on M-F 8-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Trammell can be reached on 571-272-6712. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AL
3/18/07

ELLA COLBERT
PRIMARY EXAMINER